Idiopathic Rapid-Eye-Movement (REM) sleep Behavior Disorder (iRBD) is one of the most potential biomarkers for Parkinson's Disease (PD) and some atypical PD (AP). It is characterized by REM sleep with abnormal high surface EMG (sEMG) activity. Some twitching during REM sleep is normal, but no one has defined what normal is, and no well-defined methodology for measuring muscle activity in REM sleep exists. The purpose of this study is to investigate the possibility of detecting abnormal high muscle activity during REM sleep in subjects diagnosed with iRBD. This has been achieved by considering the abnormal high muscle activity during REM sleep in iRBD subjects as an outlier detection problem, while exploiting that iRBD muscle activity is more grouped. It was possible to correctly discriminate all iRBD subjects from healthy elderly control subjects and subjects diagnosed with periodic limb movement (PLM) disorder. However, not all PD subjects were classified as having abnormal muscle activity, which is assumed to support the fact that not all PD subjects develop RBD.